



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,177	08/01/2003	Kevin Gordon JR.	STE-023.01	4889

25181 7590 06/22/2004

FOLEY HOAG, LLP  
PATENT GROUP, WORLD TRADE CENTER WEST  
155 SEAPORT BLVD  
BOSTON, MA 02110

EXAMINER

KOCH, GEORGE R

ART UNIT PAPER NUMBER

1734

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/633,177

Applicant(s)

GORDON, KEVIN

Examiner

George R. Koch III

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/1/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1734

4. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peter (US Patent 4,631,685) in view of Grewell '706 (US Patent 5,855,706) and Sundberg (US Patent 4,818,313).

Peter discloses a method for ultrasonic welding of parts by means of an ultrasonic welding device including at least a generator (supply 62 and interface 66), a converter (head 46), and a sonotrode (horn 48), based on a set curve of a time dependent welding parameter appropriate to a welding connection meeting set requirements (for example, as shown in Figure 5), wherein the welding duration corresponding to the set curve runs between a starting time  $t_0$  to an end time  $t_e$  (in Peter, this is referred to as time  $t_4$ ). Peter also discloses comparing actual data with the set curve (see columns 3 and 4), but does not disclose comparing an actual curve, and does not disclose, depending on the existing difference, of at least one welding process parameter affecting welding being altered such that an equalization of the set curve and the actual curve occurs during further welding.

However, one in the art would appreciate that curves and data points are interchangeable in a control environment, especially one that uses a PC as in applicant's specification. Since a PC (see applicant's Figure 6) cannot literally compare curves, and merely stores data points and processing operations that represent a curve, the language of comparing "curves" is being interpreted as meaning comparing data points representing curves. Therefore, Peter, which discloses monitoring data parameters to set data parameters which is, since data points represent curves, also an actual curve comparison with set curve. Therefore, Peter is being interpreted as

Art Unit: 1734

disclosing actual curves being compared with set curves. Furthermore, Sundberg shows that such curve comparison, via hardware control designs, i.e., circuits, are known in the art (see, for example, Figures 4 and especially Figure 5). Sundberg discloses that the differences between set curves and actual curves is often the result of heat losses (column 4, lines 1-16), and that compensating for these heat losses (.e., approaching the ideal curve) would achieve a good sealing result. Sundberg further suggests utilizing a regulating method for ensure a proper supply of energy in order to achieve a good sealing result (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilize a curve comparison system as modeled by Sundberg in the apparatus of Peter in order to ensure proper energy supply to the weld pieces in order to achieve a good weld result.

Furthermore, with regard to alteration of welding process parameters, Grewell '706 discloses depending on the existing difference, of at least one welding process parameter affecting welding being altered such that an equalization of the set parameters and the actual parameters occurs during futher welding (see column 9, lines 21-65 which disclose control signals for triggering welding changes). Grewell '706 discloses that changing the parameters results in a process that produces welds more easily and repeatably, which gives a wider degree of process tolerances, which reduced the overall weld cycle time and produces stronger welds (column 9, lines 42-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such process adjustments in order to reduce weld cycle time and produce stronger welds.

Art Unit: 1734

As to claim 2, 3 and 4, Sundberg as incorporated compares and compensates the actual curve with the set curve for all times between the start and finish. As a result of this, Sundberg compares for identical power values and identical energy inputs.

As to claim 5, Peter discloses changing at least one process parameter (see abstract for disclosure of changing the displacement). Furthermore, Sundberg as incorporated discloses adjustment based on actual curves to set curves, via a hardware control system (see Figures 3 and 5, and column 4).

As to claim 6, the result of the incorporation of the hardware control system of Sundberg in claim 1 above is to change the process parameters gradually over time as a result of the measurement, or compensation, for heat loss.

As to claim 7, Sundberg as incorporated discloses that the energy is matched by a regulation process (see abstract).

As to claim 8, Peter and Grewell '706 both make successive measurements (for example, Figure 9 of Grewell '706) which are used as inputs to changing the functioning.

As to claim 9, Peter (columns 3-5) and Grewell '706 (column 9) as incorporated disclose the concept of measuring a parameter at various time-points. Sundberg as incorporated discloses utilizing a regulation process which models a hardware control design to compare a set curve to actual curve comparison (as shown in Figure 5).

As to claim 10, Peter does not suggest measuring the emitter/received power as the time dependent welding parameter. However, Peter does measure energy (which is related to power) against the time (signals 68 and 69). Furthermore, Sundberg

Art Unit: 1734

discloses that controlling based on the emitted/received power allows for compensation for heat losses (see columns 3-5, especially column 5, lines 4-48, which model in hardware the structures for heat compensation, based on power). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilize a power control system as modeled in hardware by Sundberg in the apparatus of Peter in order to ensure proper energy supply to the weld pieces in order to achieve a good weld result.

As to claim 11, Peter suggests changing the welding displacement. Furthermore, Sundberg as incorporated utilizes the changes resulting from measuring the power as in claim 10 to change the energy supplied to the sealing jaws, i.e., changes the pressure (see column 3, lines 63-68) which also relates to the force acting on the parts and the energy input into the parts welded. Grewell '706 as incorporated suggests varying the motional amplitude (i.e., amplitude of the sonotrode - see columns 1-3) and also discloses varying the frequency (see Figure 6, which shows the frequency being varied). Grewell '706 suggests that variation of the amplitude and frequency results in a stronger weld. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the claimed variables in order to achieve a stronger weld.

As to claim 12, Peter modifies a welding parameter singly (the welding displacement).

As to claim 13, Grewell '706 (see Figure 6) as incorporated in claim 11 above suggest modifying both the frequency and amplitude jointly in order to achieve a stronger weld.

As to claim 14 and 15, Sundberg as incorporated would allow for the welding to be regulated over its full duration, including at least a part of its duration, based on the respective current difference between the set curve and actual curve.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



GRK  
June 19<sup>th</sup>, 2004

George R. Koch III  
Patent Examiner  
Art Unit 1734